ORGAN-BUILDING.

IT must be observed, in considering this work,* that it is not, like Hopkins and Rimbaults' classic tome, a treatise on the organ, but on organ-*building*; in other words, it is intended as a book from which the student may learn how, with proper appliances, to build an organ; not how to use it when built, which is another matter entirely. The author does indeed occasionally digress into æsthetic considerations, and generally with discrimination and good sense; but the main object of the book is strictly practical and scientific. The plates which illustrate it, and which form a larger page than that of the treatise itself, are bound in a separate volume.

A short introduction gives some general advice as to materials, coupled with the sound opinion that "the best are always the cheapest in the end," and the caution, certainly not superfluous for amateur organ-builders who are not either architects or engineers, to be careful to ascertain, before building an organ for a house, "that the floor will safely carry the weight."

The real business of the book opens with the chapter on "A General Description of the Organ," which would have been rendered clearer by a simple diagram or plan of the pipes of an organ of average size as they stand on the wind-chest, showing that each rank of pipes from back to front stands for one note but different *timbre*, and each rank from end to end for the same *timbre* but different notes. This is no doubt described, and the details are illustrated on Plate XV.; but a general plan, such as I have suggested, would make it far clearer to the beginner. In regard to compass, it is not quite correct to say that the pedal organ is invariably  ; in some large modern organs the upper compass of the pedal is to  and the upper G and F ♯ are sometimes very useful; both notes occur, though only once, in Bach's pedal parts, showing that he either had them or wished he had. The author seems also to miss the real point of the German "Ventil" system, as compared with the "Composition Pedal" system. As he explains, the composition pedal throws out, or in, certain groups of stops by one action, instead of the player having to move them all separately. The drawback to this system is that, even with the best mechanism, it produces a certain amount of noise. With the German "ventil" system the wind supply can be cut off from or supplied to certain groups of stops, the drawstops being "out" all the time and not moved by the player. This avoids noise, but it has the

* *A Practical Treatise on Organ-building.* With Plates and Appendices. By F. E. Robertson, C.I.E. London: Sampson Low, Marston & Co. 1897.

disadvantage that the position of the drawstops, in or out, does not in itself show whether they are in play or not; something is left to the memory of the performer as to what he has done with the "ventils," which has led to mistakes and disappointments in performance, especially with players who are at all nervous. The system has never attained favour in England, and in one or two cases where it has been applied to an organ, it has proved such a nuisance to players who were not used to it, that the whole work has been taken out and the composition pedal system substituted.

The chapter on Acoustics, as relating to organs, gives the theory of the vibrations of air within an organ-pipe, though the author does not profess to have any explanation to give, any more than any other writer, as to why the sheet of wind blown across the mouth of a flue-pipe should vibrate, and so set up the vibration of the column of air within the pipe; he gives the conjectural explanation which has been given before. In this respect, organ-making, like violin-making, is a kind of "mystery," perfected by experience rather than principle; organ-builders seem to have found out by experiment, at an early stage, how to shape the mouth and lip of the pipe so as to induce the vibration, but none of them know on what principle the result is produced. Nor can any organ-builder, I believe, tell you why the "languid," the plate just below the mouth of a flue-pipe, requires to have its edge nicked for the pipe to speak freely, nor why a different nicking produces a different tone; it is the work of experience, and a kind of acquired instinct. I do not observe that in the chapter on Acoustics the author anywhere clearly explains that it is not the pipe which vibrates in an organ, but the column of air within the pipe, and that the function of the pipe is merely to define and set in motion a column of air of certain dimensions. Those who know this already will see that it may be inferred from the substance of what is said in the chapter; but the reader who is new to the subject may miss that point.

The chapter on the Scale of Flue-pipes goes pretty fully into a very nice point, viz.: the extent to which the ratio of width to length in a pipe should be modified as we ascend the scale from the larger to the smaller pipes of the same stop; a point on which both opinion and practice, even among scientific organ-builders, have differed much. We may notice with approval, in this chapter, the sound remark that much of the quality of a large wooden pipe depends on the wood being fully strong—good thick sides, not the band-boxes that some economical organ-builders put together. The same applies (I do not notice that it is mentioned) to metal pipes; thin metal means poor tone. That is where innocent persons get robbed in an organ without knowing it; the thin metal pipe looks the same externally as the thick one, but the tone is poor.

The question of the scale of reed stops is treated in the succeeding chapter—a still more complicated question, because we have the additional element of the reed, and have to determine what proportion of pipe will sympathise with the reed, and then what proportion the treble reeds and pipes should bear to the bass ones. It must be remembered (and this, also, is not quite as clearly put as it might be) that in the reed pipes the pitch depends on the rate of vibration of the reed, not on the length of the pipe; the pipe being added, as I once heard a Yorkshire organ-builder explain it, "only to give 'vollum.'" Hence the reed pipes are made conical, or rather in an inverted cone; playing, in fact, the same part that a speaking trumpet plays towards the natural voice. Mr. Robertson recognises the importance and the difficulty of getting pure and regular intonation from striking reeds, and their great superiority in effect, nevertheless, to the more easily made free reed, which, as he suggests, the German builders prefer because they cannot make the striking reed as well as the English builders can, which is probably true. He does not seem to be aware of the beautiful and simple little invention by which Mr. Willis secured greater regularity and brilliancy to his

reeds, viz.: by casting or soldering a small lump of metal on the back of the tip of the reed, the weight of which, as he put it to me, acts as a "fly-wheel," and keeps the pulsation regular. There is one interesting point noted in this chapter which I have not seen touched on before—the effect which the "boot," which forms the containing chamber for the reed, may have as a disturbing element in the sound. In other words, the boot, though not intended to that end, may have a certain resonant note of its own, and if this note be discordant with that of the tongue it will spoil the effect. The author notes that Herr Haas, who tried a number of experiments on reeds, came to the conclusion that from 32 feet to 8 feet pitch a reed did just as well without a boot, and could be stuck straight in to the sound-board as it was, which is one very direct way out of the difficulty.

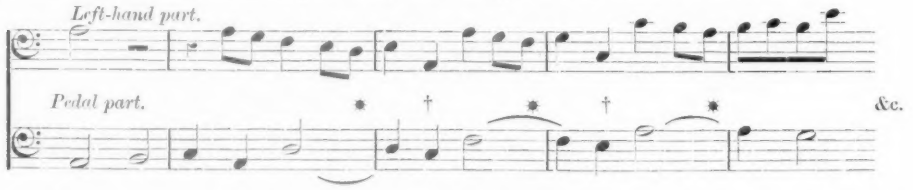
The chapters on Pipes and Pipe-making go fully into the practical side of the subject. In regard to joining up metal pipes, the author says:

"An amateur will probably despair at first of turning out the beautifully clean and fine thread of solder which is seen on the seams of an organ-pipe; but it is perfectly easy if done the right way. Soil the joint, and then, with a shave-hook or small plane, birdmouth it with a *clean cut*, as shown on fig. 118. Rub it down with a tallow candle, and tack the edges together with a drop of solder here and there; then, with the pipe rather on the slant, draw the soldering iron down at a suitable speed, and it will leave a clean job behind it. The whole secret lies in having a *clean cut*, and not a filed, scratched, or jagged surface; and the same applies to all soldering work."

To any one who looks at the organ from the æsthetic point of view the chapter on the various classes of stops will be one of the most interesting in the book. In the main the author's remarks as to the relative value of the various stops, and the qualities which they should or should not have, are characterised by excellent judgment. But there are some points here, and in the chapter on Specifications, which I think he misses. He draws attention (quite rightly) to the great deficiency of the majority of English organs in regard to pedal stops; and the most careless reader can hardly compare a list of specifications of German organs with one of English organs of about the same relative size, without being struck with the extraordinary disproportion in the amount of pedal stops, a German organ having about ten, for instance, where an English one will have three (except in the case of a few of our largest concert-hall organs). And, in connection with this point, he inveighs against the use of the very large scale "booming" pedal pipes in English organs, which, he says, and probably with truth, arose from the effort to make one or two of these "booming" stops supply the massiveness of effect which, in a German organ, is supplied by a complete set of stops repeating most of the Great Organ stops an octave lower. But when the author observes that these heavy deep pedal stops are never found on a German organ, he touches on what is really the defect of the typical German organ. It is a great mistake for English builders to depend so much on one or two "booming" pedal diapasons for their effect; but when the rest of the pedal is properly represented, such a stop, as the basis of the whole, adds weight and grandeur of effect to the instrument, and many of the German organs suffer from the want of that; they sound too much like gigantic harmoniums. On the other hand, while urging that the Pedal Organ should be larger and more efficient than it usually is on English organs, Mr. Robertson does not seem to see that half-measures are useless. For the proper performance of high-class organ music, Bach and Mendelssohn more especially, the Pedal ought to have sufficient stops to make a complete bass to the full Great Organ *without any coupling at all*. Yet Mr. Robertson gives, as his first example of Organ Specification, and as a remarkably excellent example, the organ built by Messrs. Michell and Thynne for the Inventions Exhibition of 1885, which has nine stops on the Great Organ and only five on the Pedal as follows:

1. Harmonic Bass . . . . 32 feet	4. Flute Major . . . . . 8 feet
2. Major Bass . . . . . 16 „	5. Bombarde . . . . . 16 „
3. Dolce . . . . . 16 „	

Here Nos. 3 and 4 together would evidently make a light Pedal for playing with the softer portions of the manuals without coupling; and nothing is left for a loud bass to the Full Organ but Nos. 2 and 5, a loud diapason and a loud reed—both unison stops (for sixteen feet on the pedal counts as eight feet on the manual). That Pedal would be absolutely useless as a bass to the Full Organ without coupling, while with coupling it would be rather too loud; but the important point is, that with coupling there can be no free movement of the pedal part across the left-hand part—an incident constantly occurring in Bach's Fugues. Here is a specimen from his greatest organ work, the "Fugue in the Doric mode":



Let Mr. Robertson, if he is a player, try to play that on an organ where the pedals have to be coupled to the Great, and he will find that where I have put stars the left hand comes down on a key already held down by the pedal; and where I have put † it descends below the pedal, falsifying the harmonic progression. That makes five failures in three bars, from having to play with the pedal coupled to the manual. The thing is perfectly ridiculous, and the only reason this blunder of an insufficient pedal goes on repeating itself is, that the people who build organs are absolutely ignorant of organ music, and the organists, who ought to look after them, are indifferent, and cased in routine, and are contented with playing Bach anyhow. As an example, I will give the Pedal Specification of the same organ as it ought to be, giving that of the Great Manual also:

Great Manual as specified in Messrs. Michell and Thynne's organ:

1. Violon	16 feet	6. Harmonic Flute	4 feet
2. Large open	8 „	7. Quint mixture	
3. Small open	8 „	8. Mixture	
4. Claribel	8 „	9. Tromba	16 „
5. Octave	4 „	10. Trumpet	8 „

But, having written it down, before going any further I must point out that there are no less than three serious mistakes in that list. In the first place, that organ is not large enough to have a 16-foot reed (No. 9), which would only be in the way, and muddle it. Secondly, the Harmonic Flute is quite out of place on the Great Organ; it is a special quality of tone which does not combine with the other Great Organ tone, and the only explanation of its being constantly placed on the Great Manual is that organ-builders have no perception of *timbre* combination, and that most organ-players are apparently no better, otherwise they would never endure it. Its tone may be useful to float above the Diapasons, but it will never combine with the "chorus" work—the very look of it there is enough to set one's teeth on edge; and if placed on the Great Manual it should at all events be separated from all the composition pedal combinations, and left to be drawn separately. The third blunder is the "Quint mixture," which is, of course, Twelfth and Fifteenth on one slide, so that they must be drawn together. I observe that in his chapter on Stops the author says that this ought to be done for the convenience of the player, "because the Twelfth cannot possibly be used without the Fifteenth"; but it never seems to have occurred to him that the Fifteenth may be used without the Twelfth, and often with much better effect. Both he and Messrs. Michell and Thynne would probably be surprised to hear that Bourdon, small Open Diapason (without the large), Stopped Diapason, Principal, and Fifteenth, make a charming organ for

light fugue passages; and still more surprised to hear that an exceedingly effective combination can be got by Bourdon and Fifteenth in brilliant solo passages.* I will now, therefore, give the Great Organ for Messrs. Michell and Thynne's organ as it ought to have been for the same number of stops (one more stop in numbering, because No. 7 in their scheme is now resolved into its two component parts):

Messrs. Michell and Thynne's Great Manual, as it ought to have been:

1. Bourdon	16 feet tone	7. Principal	4 feet
2. Large Open	8 „	8. Twelfth	
3. Small Open	8 „	9. Fifteenth	2 „
4. Stopped Diapason	8 „ tone	10. Mixture (19, 22, 26, 29)	
5. Gamba	8 „	11. Trumpet	8 „
6. Spitzflöte (light scale)	4 „		

The Pedal Organ to the above, as it ought to be:

1. Sub-Bass	32 feet tone	6. Flute Bass	8 feet
2. Open Diapason (metal)	16 „	7. Fifteenth	4 „
3. Violon	16 „	8. Mixture (5 ranks)	
4. Bourdon	16 „ tone	9. Trombone	16 „
5. Principal	8 „	10. Trumpet	8 „

That is a Pedal Organ with which you can play a fugue without any coupling being necessary. In regard to the Great Organ scheme, the 16-foot Bourdon is far too useful a stop to omit; nothing blends like it with the Diapasons in passages of extended harmony. The Violon or Double Gamba is rather for an organ large enough to have two 16-foot flue-stops on the manual. The same may be said of Stopped Diapason; the Claribel does not supply its place—it is too "hooting" in quality. The great value of the Stopped Diapason, in the general effect, is that it adds more weight and breadth of tone without more noise. A combination of 4, 5, and 6, or 3, 4, and 6, makes an admirable *light* organ. In the Pedal the metal open Diapason is an expensive item, but it is worth the money. The pedal mixture is often omitted, even in German organs; but it has a grand effect in slow passages where the Pedal makes a kind of *canto fermo* bass.

Another statement that I must take exception to in the chapter on organ stops is that the Salicional, Dulciana, and Vox Angelica are only different names for a very delicate stop. They ought all to be different in quality, and usually are. The Dulciana is really a very light and soft Diapason; the Salicional a very light and soft Gamba, with something of its reedy quality. The Vox Angelica ought to be rather rounder in tone than the Dulciana, and still softer. I must also protest against the heresy, in regard to the ordinary Oboe stop in the Swell, that "it should of course imitate as nearly as may be its orchestral namesake." It should do, and does, nothing of the sort. The "Orchestral Oboe," a modern stop (not mentioned, by the way, in the author's list), is that which imitates the actual instrument; the organ Oboe is a "mixing stop," called by that name because everything must have a name, but has little resemblance to the orchestral instrument, and would fail in its special value if it had. When the author refers to the Voix Céleste—two Dulcianas, one of which is a little out of tune with the other, so as to produce a "beat"—as "a gross libel on the harmony of the spheres," I am disposed to agree with him; at the same time the Voix Céleste, if used sparingly and with discrimination, has its *raison d'être*—it is an effect which nothing else can replace; but a little of it goes a long way. The same may be said of the Vox Humana, which is a stop worth having for occasional and judicious use, only it should not be abused.

It is noticeable that the author has not said anything as to the philosophy of the use of mixtures and other "mutation stops" (stops which sound a different note from that which is

* I first learned this effect from a set of Variations for the organ by W. T. Best, and have often used it since. Few players seem to be aware of it.

supposed to be represented by the key that is pressed). He mentions incidentally that the notes of the mixtures represent the harmonics of the fundamental note; and I remember being told, when first making acquaintance with the organ, that this feature was introduced to supply the effect of the sympathetically sounded harmonics of the pianoforte. But, in fact, as Helmholtz has shown, the principal harmonics are produced by the pipes themselves; stopped pipes will even develop a tendency to sound the fifth or twelfth more prominently than the fundamental note; so that this defence of the mixture stops is a fallacy. The point has been very much debated, especially among the French; Berlioz, who (like many French musicians) had little sympathy with the organ, is exceedingly sarcastic on the subject. And when you tell a person not accustomed to the organ, that on sounding the chord of C major on the Great manual with all the stops out, you have actually a combination of these notes:—

the open notes representing the keys you strike, and the small black ones the additional notes sounded by the "mutation" stops, he naturally thinks that either you or he must be mad. Of course the main weight of sound is on the notes that are struck, the mutation notes are kept in subordination; but they are there, and can be heard if listened for. It is no use defending it on theory; there is no theory for it. But practice, and the experience of the old organ-builders, guided them to the fact that this was the one method of giving brilliancy of tone to an instrument which, if it were composed of only unison and octave stops, would sound dull and heavy. *Solvitur ambulando*; it does produce the desired effect, without producing any sense of discord to the ear, when the stops are properly balanced; and that is all the philosophy of the matter.

One point in which I am very much in sympathy with the author is in his depreciatory criticism on the Swell Organ. I do not agree with him in saying that all the effects of the Swell that are worth producing can be produced by a good player without it; that is going too far. But I do agree with him that such effects are not those which belong to the highest quality of organ music, and that if you have only money enough for two manuals, it is far better to dispense with the Swell and to make the second manual a Choir Organ, rather than shut up half the pipes in the organ in a box where they cannot be heard. And that is a point worth the consideration of architects who may be consulted about an organ, or may have some influence in regard to its laying out. Let them throw their weight, when they have any, into the scale in favour of a large and complete Pedal Organ, which can dispense with coupling to the manuals;* and where there are only two key-boards, let them urge the adoption of a Choir Organ rather than a Swell as the second manual. They will thus be exercising their influence in favour of the higher qualities of organ playing.

There is one possible feature in a large organ which I do not think is hinted at anywhere in Mr. Robertson's book. Where economy is no object, the grandest effects can be produced by having *two* Great Organ manuals—alike in power and in general character, but with a certain degree of difference in tone and quality. Many of Bach's compositions could be played on such an organ with an effectiveness and variety which could be attained in no other way. I have only come across one such organ—the grand old instrument in the parish church of Northampton. I wish there were more like it.

It only remains to say that in the chapters upon Bellows, Action, Tuning and Voicing, the whole subject is gone into in a most practical manner. In the chapter on Bellows the author does not say, in so many words, that few organ-bellows are large enough, though what he says

* I do not mean to say that Manual to Pedal "couplers" should not be provided; they should be there for use when necessary; but one ought not to have to depend on them.

may be taken to imply that. There are few church organs in England that are not short of wind when hard pressed, and it is one of the most serious defects an organ could have; saving money (and space) on the bellows is one of the worst, and at the same time one of the commonest, forms of economy indulged in organ-building. This also is a point in regard to which the architect may have some influence. Let him at least provide space for bellows of adequate size. This can often be done by placing them in a vault under the organ, where space on the ground floor is limited; but care must be taken to keep out damp.

The illustrated plates and diagrams, forty-five in number, leave, for the most part, nothing to be desired; they are full in detail and clear in drawing. The only things one need object to are the one or two examples of organ cases and fronts, which were not necessary in a work of this kind, and, from an architect's point of view, are merely such as may be described as "organ-builder's gothic."

In the main, all lovers of the organ may feel grateful to the author for a careful, learned, and practical treatise.

H. Heathcote Statham.

TWO SOUTH-SAXON DOORWAYS.

By J. Tavenor Perry [*F.*].

THE revived interest taken by archæologists and architects in the remains of buildings assumed to be erected in this country during the period of the Saxon and Danish supremacy, is peculiarly appropriate to the time when we are about to celebrate the thousandth anniversary of the death of one of the greatest of our Saxon kings; and the Paper recently read at the Institute, by Professor G. Baldwin Brown, on "Some Characteristics of Pre-Conquest Architecture,"* has done much to re-formulate the principles of the style—if such it may be called—in accordance with the fresh light thrown on its origin from the historical and architectural knowledge acquired in more recent years. The Professor, in this Paper, makes the suggestion "that the Institute would be doing a most valuable service to the cause of architectural study if it could focus in some way the labours of isolated workers in different parts of the country, and bring together the results of so many scattered investigations." Acting on this suggestion, I have prepared an account of two interesting, and, I think, undoubted Saxon doorways, which, although within a few miles of Brighton, are but little known to the general architect, and are practically ignored in the guide-books. These are the north door of S. John Baptist Wivelsfield, and the south door of S. Mary Magdalene Bolney, both in Sussex.

The sketches given herewith will show the peculiarities to which I have to draw particular attention, and which I think are the result of no local influence, but characteristic of a distinct style, founded directly on an attempt to imitate Roman examples, and have nothing in common with, but are long anterior to, the Norman style, to which they are usually ascribed. The peculiarity which, perhaps, strikes one first is their proportion, the opening being in height about three times the width, a much more graceful and classic proportion than that of the Norman doors, where this proportion was sacrificed to allow of the use of many orders of mouldings overloaded with rude enrichments which do not atone for the squat appearance of much of the Norman work. This proportion of great height to width seems to be very characteristic of Saxon work, and is most noticeable in the church of Worth, Sussex, where the Saxon windows still remaining are at a great height in the walls, and arranged somewhat as a clerestory. The two blocked-up doorways at Worth, of which the interior arches alone remain, also show a great proportionate height to width, exceeding even those of Bolney and Wivelsfield. Professor Baldwin Brown says:—"This height and narrowness are distinctly neither Roman nor Romanesque. Where they make their appearance we may be safe in predicting the influence of Celtic tradition." With the statement that it is distinctly not Roman I cannot agree; and I cannot understand how any Celtic building traditions could possibly have survived in the kingdoms

* Journal, Vol. II. Third Series, p. 485.

of the West and South Saxons to the period when church-building began among them. But it is much easier to conceive that this feature, together with others, to which I shall refer, was the result of direct Roman influence, with which I have dealt in my Paper on the Roman Campanili.*

Another feature of these arches, which allies these doorways rather to the Roman than the Romanesque, is the character of the archivolts and imposts. There is no attempt, by bold projection and recessing of the jambs, to form a series of orders of mouldings, as in the later style; and a comparison of the section of any average Norman doorway with the archivolts of later Roman times—say, the palace at Spalatro, or the ninth-century Roman campanili—will show how much nearer these Saxon doorways approximate to the latter than to the former. That there are two rings in the archivolts I do not consider to be an early form of the orders which became so usual later, but due, rather, to ignorance of the manner in which the Roman archivolt was constructed, as the projections of one ring before the other are only, as at Wivelsfield, 1¼ inch, and at Bolney 2 inches; whilst the arrangement of the reeded mouldings points also to the same imperfect imitation. In the door south of the tower of S. John Barnack there is a similar arrangement of two rings of arches, with only a slight projection; but in that case they are unmoulded. The size and jointing of the arch stones distinguish this work from the succeeding Romanesque, in which the stones are small, closely jointed, with something approaching to regularity in size, whereas in these arches the stones are evidently as large as the builders could obtain, and are most irregularly spaced. The arrangement of the voussoirs at Barnack is in all respects similar to these Sussex examples.

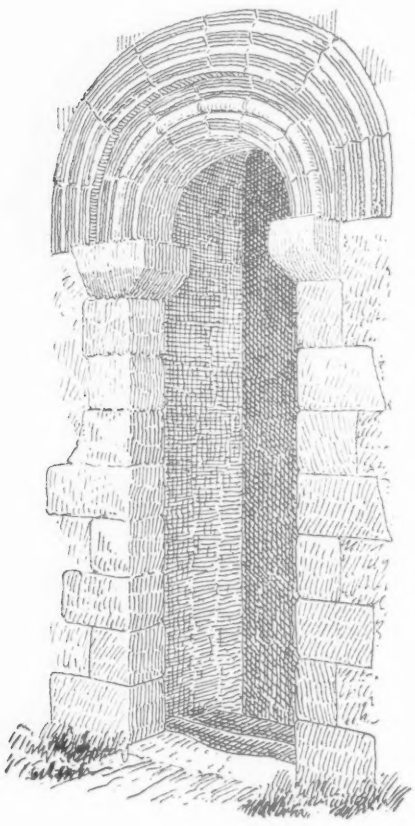


FIG. 1.—WIVELSFIELD.

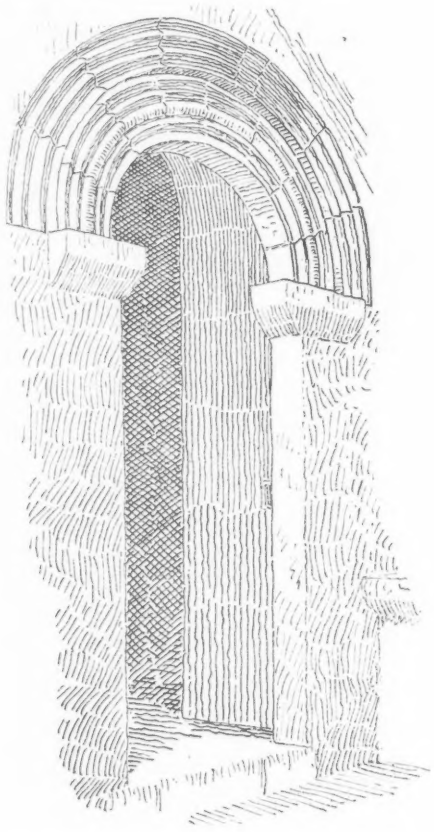


FIG. 2.—SOUTH DOOR, S. MARY MAGDALENE, BOLNEY, SUSSEX.

* "The Mediæval Campanili of Rome," JOURNAL, Vol. V. Third Series, p. 213.

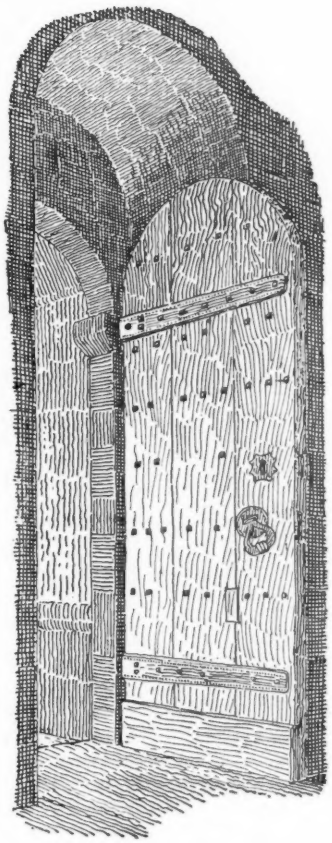


FIG. 3.—BOLNEY, INTERIOR.

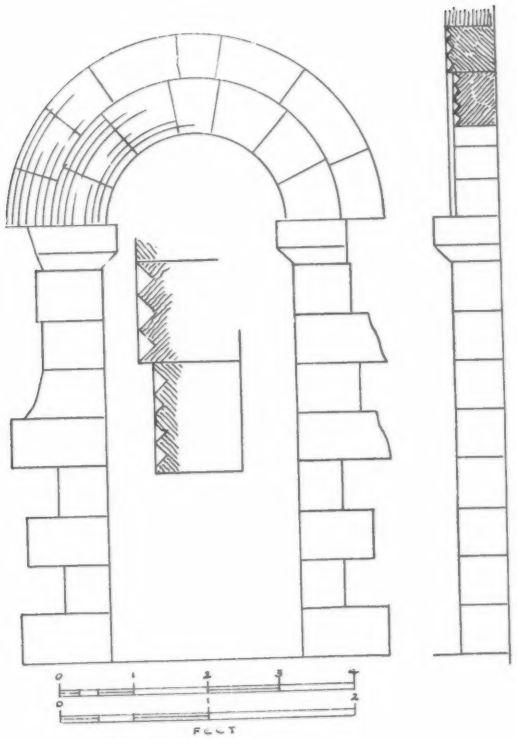


FIG. 5.—WIVELSFIELD.

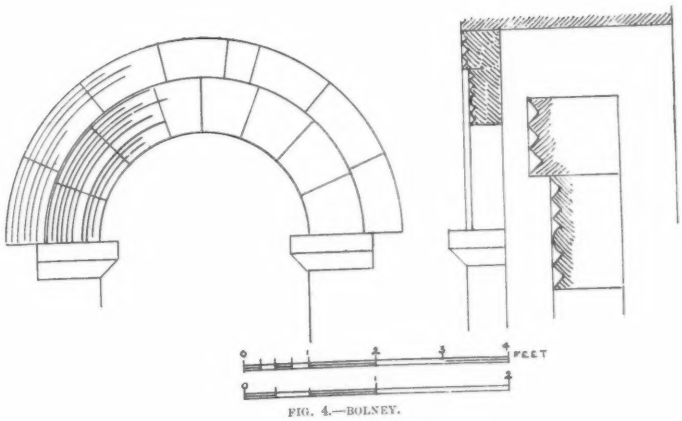


FIG. 4.—BOLNEY.

Mr. Hussey, in his notes on the churches of Sussex,* calls attention to the presence in some of the undoubtedly early ones of a peculiar stone, the use of which was superseded in later work by Caen stone ; and he regards it as evidence, in part, of the early date of the buildings in which it is found. It is of a coarse character, and he describes it as a freshwater-shell limestone from Purbeck, and he found it in the lower parts of Sompting and other churches in Sussex and Hants. The stone in the arches of Bolney and Wivelsfield seems to answer to this description, and is quite different from the Caen and other stone found around them in these two churches. The stone has turned a greenish yellow, looking very coarse and dirty, but it is very hard. I think, therefore, that this may be taken as additional evidence of the early date of these doorways. The internal arches and reveals of these doors and those of Worth are very peculiar. Although the inner reveals are but slightly wider than the outer reveals, the arch rises to a much greater height than the outer one, and is thus not concentric with it—an arrangement peculiar to Saxon methods of building.

After all that has been written and said about the almost complete lack of authority which would enable us, even approximately, to define the period during which any one of these Saxon buildings has existed, it may appear presumptuous on my part to try and fix the date when the doorways, and doubtless the churches, of Bolney and Wivelsfield were erected; but as the object of this communication is to form a contribution to the general study of Pre-Conquest architecture, it may be useful to enunciate a theory—for others to support and refute with their reasons also—which the examination of other churches in the country, and comparison of them with these, has led me to form on this subject.

The two best known and most complete churches in this county, generally admitted to be of Saxon work, are those of Worth and Sompting. Of these the church of Worth may be considered a very late example of the style; its great size, and its isolated position within the forest of Anderida, render this most probable; and while it preserves all the features of the Saxon style, and suggests no approximation to the Norman, which was so soon to supersede it, its work is so coarse, and all its details so rude, that it must be regarded as a debased example of a decaying style. The church at Sompting, so far as we can judge by the oldest remaining work, is not long anterior to Worth. The earliest details remaining in this church, although coarse, are not so rude as at Worth, as a comparison of the treatment of the mid-wall shafts, and their bracket capitals, will show; whilst the tower, which in its treatment of the belfry openings shows distinctly Roman influence, is surmounted by a spire so unique in this country as fairly to fix its date within the few years of Canute's rule. Throughout the lands and islands of the Baltic Sea such towers and spires are common, and of dates as early as that claimed for Sompting, which may well have been erected by a Dane, who, over his semi-Roman tower, put the snow-shedding roofs of his native country. We may, therefore, approximately put the date of Sompting well within the eleventh century, and Worth in the middle of it. When we compare the graceful proportions and classic treatment of the doorways of Bolney and Wivelsfield with the coarseness of Sompting and Worth, we at once see that the former belong to a different and more artistic age; and I think they can fairly be assumed to belong to the peaceful and lettered reigns of the grandsons of Alfred the Great, or the second quarter of the tenth century.

Of the recorded history of these churches there is nothing to relate, and the few notices published in journals or guide-books are most meagre.* Neither of these churches is mentioned in the lists of Saxon buildings published by Bloxam or the Camden Ecclesiological Society. Of Bolney there is an account in volume ii. of the *Sussex Archæological Collections*,† in which it is stated that on a restoration of some years ago, which seems to have amounted almost to rebuilding all except the tower, the Norman chancel arch, and considerable supposed Saxon remains, were destroyed. The doorway head was then covered over by a modern porch, which accident, perhaps, saved it from destruction at the same time. The jambs and all the interior of the doorway are coated with plaster, so that the exact nature of their stonework cannot now be made out. When the church at Wivelsfield was restored a new north aisle was built, and the Saxon doorway reset in the new north wall; but Messrs. Carpenter and Slater, who carried out the work, have left a published record of the alterations.

* *Notes on the Churches of Kent, Sussex, and Surrey*, by the Rev. Arthur Hussey.

* See *A Compendious History of Sussex*, by M. A. Lower. Murray's *Handbook to Sussex*, 1893, does not mention the doorway at Bolney, and describes that of Wivelsfield as Norman.

† *Sussex Archæological Collections*, vol. x., p. 59.

A BOMOS* IN SABINA.

By the Cavaliere Settimio Giampietri [*Hon. Corr. M. Rome*].

UPON the ancient Via Salaria, in the heart of Sabina, are to be seen remains of Roman tombs. Near the Osteria Nuova especially, rise up some grand ruins, despoiled of their architectural and decorative embellishments. The Osteria itself stands upon the colossal remains of a Cyclopean construction. Such is seemingly the appearance of its entrance, consisting of a tunnel constructed with enormous parallel blocks, and roofed in with huge stone sleepers arranged lengthwise. Directly we arrive within the Cella, an attentive examination of its groined roof, made, with masterly art, with enormous centered stones, reveals Roman work of the time of the Flavii. Curiously enough, in the interior of the Cella there is a deep well, from which water is still drawn. (A similar well exists in the tomb of the Anici on the Via Latina, near Rome.) This supposed Cyclopean construction is nothing but a Roman work, and technically exactly resembles the substructions of the Colosseum, except that the blocks are larger. To judge from the length of the tunnel, which should represent the thickness of the walls, the edifice must have been colossal. It is to be remarked besides, that the solid stone of which it is built is imported from a long distance, because the natural fluvial soil of these parts is composed solely of a consolidated shingle, which was used by the Romans in making the Via Salaria, and by the Pelasgi in a *Bomos*, which I shall now mention. At the same time, this almost unique and admirable specimen of Roman art is ignored by the Ministry of Public Instruction, and serves as a pigsty, whilst so many mediæval constructions, which, after all, only represent the decline of art, are declared to be national monuments.

Sabina is rich in already known Pelasgic constructions, but I will now mention one hitherto unnoticed.

An hour's walk from the Osteria Nuova, and between the bridge of Buita and Poggio S. Lorenzo, is a hill, which slopes and descends towards the bridge. Fifteen minutes of ascent beyond the bridge, after passing a poetical grove of oaks belonging to Signor Carosi, brings one to a level spot, on the remains of a most original Pelasgic construction, certainly belonging to a *Bomos*.

In fig. 1, I give the plan of what remains, with the geometrical dimensions; and in figs. 2 and 3 the perspective view.

The terrace upon which rose the altar for sacrifice, must have been a quadrate of about forty metres each side. What remains is a part of the perimeter of the three sides (towards the valley) which sustain the terrace; the fourth side, towards the hill, was accessible, and, perhaps, was open and level with the fort. Ascending the hill for another ten minutes, one reaches a summit where other ruins tower above. There is a cistern for water, and still further on several wells in the soil similar to those excavated in the rocks at Faleria, considered to be storehouses for grain. These wells plainly indicate that the ruins were Sabine, contemporary with the Etruscans. Here there was probably a small town built on the ruins of an ancient Pelasgic *oppido*, and, in the midst of the present ruins, called *Torracce*, would have been the citadel (*arce*) of the *oppido*, which would explain the existence of some tombs discovered in the area of the *Bomos*, afterwards used by the Sabines as a cemetery. In fact, from what I saw and learnt from the peasants, they have found some skeletons, and some traces of walls and tiles on the area of the *Bomos*, in the excavations made for plantations. Indeed, nearly in its centre a circular cellar of masonry, now closed, fell in, which was certainly posterior, and had nothing in common with the construction of the *Bomos*, and must be a sepulchral Sabine Cella.

The proof of the age of this structure is derived from the technique recognisable in the two views figs. 2 and 3 [p. 489]. Another sign of its great antiquity is the inequality of the distances between the pilasters or buttresses of support to the wall; the distances between them diminishing in proportion to the greater height of the wall. Thus a statical law was observed entirely at variance with æsthetic form, a characteristic of Pelasgic constructions. The blocks are in unequal horizontal arrangement, but perfectly connected, without any cement, and left rough on the surface.

This monument also is perishing. To make a new hovel here they have taken sundry blocks, and destroyed a part of the *Bomos*.

The entire construction formed a terrace, in whose centre must have risen the altar for the sacrifices, in which, as is known, the Pelasgi immolated human victims. Alas for the maidens who were here murdered to propitiate the gods!

Amongst many varied and conflicting opinions it is not known for certain why this people was called Pelasgic; but what they were we can now ascertain.

They were an aboriginal people of Italy, to which its symbol, the *Italos* (calf, bull), gave the name, and where they left so many traces and such abundance of monuments as to vindicate

* Pelasgic Altar.

their true origin, which has been confounded and confused by Dionysius of Halicarnassus, who nevertheless confessed that in his day there existed no longer in Greece edifices built in the Italian manner. So that consequently that art must have been introduced there.

Other elements present themselves to those who study and meditate upon the archaic monuments in Italy, to show that nothing had been imported here before the Romans.

This aboriginal people (the same as the *Pelasgic*: according to the Bible *Phaleg* or *Paleg*, signifying division of people) had a civil government. The Cyclops (from *ciclo-opes*, that is, builders of

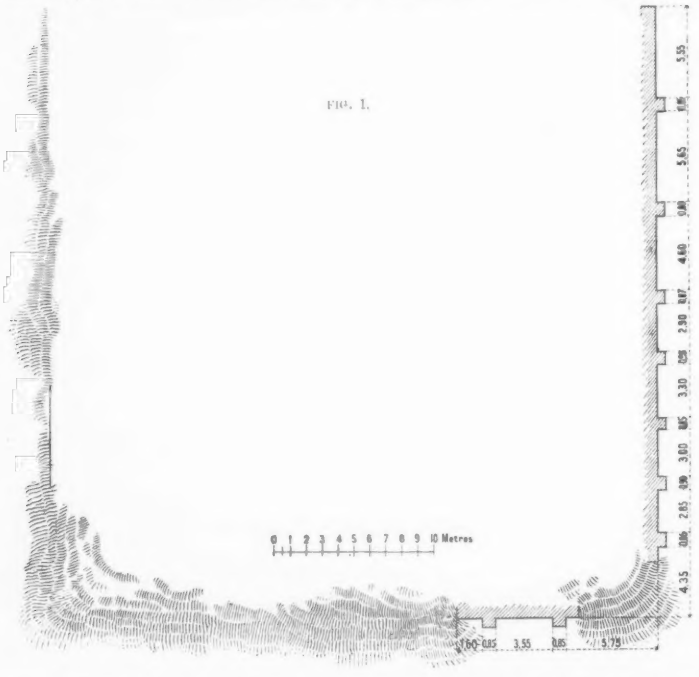


FIG. 1.

the arx) were a religious corporation of architects, and were Pelasgi, not another people.

The poets represented them as giants with one eye in the middle of their foreheads, because such was the aspect of these strong workmen; for when extracting large masses from the caverns they wore a circle of iron upon their foreheads, to which was affixed a tallow candle to give them light. Pausanias tells us that the Pelasgi Agrola and Iperbio, who built the walls of the Acropolis, were Sicilians.

The Arcadians were these same Cyclops, their name deriving from *arx* (arch) and from *aedes-facere* (to edificate or build). Also the builders of the arx before the great cataclysm (1925 B.C.) emigrated to the land to which they gave the name of Arcadia.

The Phœnicians were also the same people, so called from *for*, because they invented the phonetic letters: and Mercurius was Phœniko-pelasgic. This affirmation, notwithstanding the modern progress of archæology, might seem bold; but Fosbrooke, in his *Encyclopædia of Antiquities*, more than half a century ago, considers the Phœnicians as the inventors of architecture, believing them symbolised by the name of Cyclops and Pelasgi. In fact, Moses describes their cities as surrounded by strong walls; and the Temples of Melcarte and Astoret at Tyre, built by Hiram with cedars of Lebanon, and adorned with columns of gold, are their work.

The Tyrrhenians also were the same people, so called because they constructed the *turracoli*, or the arx. Many Phœnician monuments remain in Sardinia, where chiefly the Tyrrhenians worked. The *nurrachi* are their work, and *nurraco* means *turraco* (the dialect changing *tu* into *nu*), tomb or temple, both at the same time, because the dead being deified, the tomb became a temple.

These aborigines, about 2200 B.C., disconcerted and almost annihilated by the tremendous cataclysm (which caused the division of Sicily from the continent, the elevation of the Septimontium, the swallowing up of the Atlantides, the formation of the great craters, now the lakes of Albano and Nemi), emigrated with religious rites (*primavere sacre*: sacred spring-time); and this is the grand Pelasgic movement whence, perhaps, derived the name, as I have already said, from the Biblical *Phaleg* or *Paleg*, viz. division of people.

Some have believed *Vitulonia* to be antediluvian, and before the cataclysm. They maintain also that the tomb of Agilla (the Etruscan Ceri), found in 1835, was outside the influence of imported art. The variety, quantity, and richness of the objects found in it (now existing in the Etruscan museum in the Vatican) suffice to prove the advanced state of civilisation in Italy in prehistoric and ante-Homeric times. Canina and C. Cantù believed the tomb to be that of a matron, from

FIG. 2.—REMAINS OF PORTION OF FRONT OF THE ROMOS.

FIG. 3.—REMAINS OF ONE SIDE OF THE ROMOS.

FIG. 4.—LARGE STONE BLOCKS OUTSIDE THE OSTERIA.

FIG. 5.—ENTRANCE TUNNEL TO THE ROMAN TOMB.

the quantity of golden ornaments found there; but it is now known to have been that of a *Lucumo*, high priest and warrior of the aborigines.

Now, at length, it seems that Signor G. Fregni, of Modena, has found the method of interpreting the Etruscan inscriptions by the ancient Latin dialect, which proves that the language and the dialects are also indigenous in Italy.

These people—who separated and emigrated in "sacred spring-time" from their country, now become convulsed and uninhabitable—have the *cow* as their symbol, and those who remained, the *calf* or *Italos*. Those who emigrated founded colonies, and we find their works at Tirinto or Tiryns, at Messene, in Argolis, in the Peloponessus, in Attica, in Bœotia, in Thessaly, in Phocis, in Epirus, in Thrace, in Asia Minor, and in Egypt, all identical with the works of their forefathers in Italy.

In Egypt, also, we find the *Osiris* or cow *To*, symbol of a wandering people—the Pelasgi—who appeared in Egypt under the name of *Shepherd-Kings* (the Hyksos) towards 2200 B.C., which was the epoch of the great emigration.

The other emigrants, the Phœnicians, inhabitants of Canaan, the promised land of God to the Hebrew people, were enemies of Moses, who prohibited their worship (the adoration of the dead) and declared their animals, the sow, the sheep, and the cow, unclean. These animals, religious symbols of the Phœnicians, remained amongst the Roman rites in the *Suovetaurilia*.

The golden calf, made and worshipped by Aaron, is the bull *Apis*—that is, the calf *Epafo*—and was the symbol of a stationary people. The Hebrews, fearing the Phœnicians, and hopeless of possessing the promised land, rebelled against their god, and, desiring to remain where they were, raised up the golden calf or *Italos* (stationary).

Whilst on the subject, I would add that the use and feast of trumpets were taken from the Tyrrhenians. The trumpet is a Tyrrhenian invention, and who has not seen it constantly sculptured on ancient Italian tombs? The Hebrews retained Italian forms and symbols. *Boaz* and *Jachin* are the *Terminus* and the *Juventas* of the Italian Cabiric skulls, which we now see.

Solomon worshipped *Moloch*, who is our *Saturn*. He worshipped *Astarte*, or rather *Astoret*, the Phœnician Venus, whose real name was Aphrodite, and, as such, an Arcadian deity and protectress of Troy (formerly Dardania, founded by the Italian Dardanus), and afterwards of Rome.

Here it seems well to show that the name *Palatine*, formerly *Bucitatum*, is not derived from *Palladio* or statue of Pallas (Minerva, Athene), but from *Phalladius*, the god *Fallo*, sculptured on the Pelasgic walls of Alatri, Cures, &c. Æneas descended from Dardanus could not worship a divinity hostile to Troy. Pallas had been propitiated by the Achaians, and was protectress of Athens, to which she gave her name.

About 200 years after the great cataclysm in Italy, the hills formed by the eruption of the volcanoes on the banks of the Tiber had become covered with a dense forest (see "Nispi-Landi, Roma Monumentale"). The Cabiro, attracted by the aspect of the place, founded there the *Caput-olim* (from which derives *Campidoglio*), or the first Cabiric temple in the form of a human skull. The periphery was enclosed by huge rocks; and the so-called *Gigantic* in the island of Gorzo was one of these temples. At the position of the eyes rose two columns, the *Terminus* and the *Juventas*, symbolising Right and Might, imitated by Solomon in his temple with *Boaz* and *Jachin*. At the position of the mouth was placed the *arx*, a square stone, upon which the Cabiro mounted to exercise the mysteries of his religion, which were at that time applied to the worship of the elements of nature, on account of the tremendous fiery volcanic disturbance. This stone gave its name to the entire circumference which, later, from its strength came to signify rock or fortress, and was the origin of the words *arch*, *art*, &c.

Evander in later times erected the other *Caput* on the Velia. Perhaps, also, from the propitiated *Pale* (Ceres) he called the *Bucitatum*, *Palatium*, afterwards *Palatino*, already sacred to the Bull, and the place where they summoned or cited the bulls, that is, the Italians. The *Forum Boarium*, which even Canina thought was a market for oxen, signified no less than *Foro Italico*, and was consecrated to Evander the Arcadian, in memory of the bulls rescued from Geryon, or the Italians recovered. The famous Bull of Egina was erected in memory of this deed.

Hercules, the Pelasgic-Argive from Argos and Mycenæ, crossed the straits of Abyla and Calpe with the Argives and Epirots upon Tyrrhenian ships, called afterwards the straits of Hercules, and famous for the columns erected there with the motto, *non plus ultra*. He assailed the Iberians, conquered and killed Geryon, and liberated the Italian prisoners in the island of Erythia, called by the classics in the arcanic language *Bores*, which Livy expresses, *boves mira specie*. Hercules crossed the Pyrenees with the liberated Italians, and traversed Celtia, where he fought and conquered; crossed the Alps, called by him Greek (now Graian), and the place where he crossed was called thenceforth the "Pass of the Greek." He arrived in Italy towards 1322 B.C. With the help of the Tyrrhenians he expelled the Iberian-Ligurians, and as a memorial of the victory erected on the spot the temple of Hercules Moneco (now Principality of Monaco). A tribe was left to guard the pass, who, from the symbol *Taurus*, called *Taurina*, erected the

Larissa (fortress) Taurina, afterwards *Augusta Taurinorum*, now Turin.

Thus conquering, he crossed Tyrrhene, passed Vitulonia (from Vitulus), then by the mountains Cimini, sacred to him, and where a temple was erected to him on the lake of Hercules (now Vico), and arrived at the Larissa Sutrina. Continuing on to the Septimontium, he there pursued the enemy and killed Caco their chief. He was welcomed by Evander, and the *Ara Massima* erected to his honour. More than 2,000 temples were then dedicated to Hercules in Italy, and every city called one of its gates the *Gate of Hercules*.

All these facts suffice to show the indigenous civilisation of the aborigines of Italy; but, besides this, the number and variety of the Cyclopeian, Etruscan, and other archaic monuments of Magna Græcia do not admit any longer the idea of an imported art. Can the so-called Tirynthian walls of Olevano Romano, of Artena, &c., have been imported, constructed as they are of enormous rough blocks unattached by iron?

The Romans, having subdued the Etruscans, destroyed their history, which now rises up from their tombs. The Greeks afterwards supplied them with an art suited to the grandeur of their arrogance and ostentation, when their Republican virtue had already been suffocated by the pride and oppression of the Empire; but, nevertheless, art in the original purity of its beauty had in Italy its birth and its beginning.

Italy was the cradle of prehistoric civilisation. The worship of the beautiful was innate in her, and if to-day she is surpassed by other nations, it is only because a political corruption gives to mediocrity—which always forms the majority—too many means to stifle genius, and close to her all roads conducting to the nobler manifestations of art.

NOTES, QUERIES, AND REPLIES.

The Architects of the English Renaissance.

From JOHN HEBB [*F.*]—

The *Edinburgh Review* for April last, in the course of an article entitled "The Understanding of Architecture," remarks:—

"Students have thus been accustomed to give the credit of architectural invention to the almost mythological John of Padua, John Thorpe, Smithson, and Haveus. Haveus and his claim to the Gate of Honour at Caius have been exploded by the antiquarians of Cambridge. For John Thorpe the late Mr. Wyatt Papworth undertook the task of removing almost all authentic title to fame and has shorn him of so many supposed attributes that, beyond the presumption that the signature John Thorpe attached to certain plans in the Soane Museum was written by a man bearing that name, there is little glory left for his memory. John of Padua, if he ever existed, must now be looked on as little more than a mason, with a dash of the clerk of the works in his character, and Smithson's credentials are ruthlessly narrowed down to the doubtful testimony of a eulogistic tombstone."

Cavaliere Giacomo Boni, in a paper in the *Archivio Veneto*, vol. xxxii. 437, 1886, entitled "Un architetto Veneziano alla corte di Enrico VIII.," has the following with regard to John of Padua:—

"In the October issue of the *Journal of the Royal Institute of British Architects* are some interesting particulars with regard to John of Padua, famous in England in the sixteenth century, and who succeeded Holbein in the service of that monarch [*i.e.* Henry VIII.].

"The information is taken from an article by Rev. Canon J. E. Jackson, rector of Leigh Delamere, Wilts, reprinted from the *Wilts Archæological and Natural History Magazine*, vol. xxiii. p. 14.

"To John of Padua is attributed the erection of Longleat and Sion House, according to Walpole; the gate of Caius College, Cambridge, noted in *Vetusta Monumenta*, vol. v., and old Somerset House, in the Strand (*v. Builder*, 20 June 1868).

"A large proportion of what is attributed to John of Padua, according to Sir M. Digby Wyatt,* is apocryphal, and according to Canon Jackson no documents exist with regard to the works attributed to him; but on that account there is no need of documents to prove the tradition to be true, while on the other hand documents are of the first importance to prove the tradition is false, and these the English critics do not possess.

"We know that a certain John of Padua was in Henry VIII.'s service in 1554, and that he received a salary of two shillings a day for his compositions in architecture and music, but it is to be regretted that the document cited by Rymer (*Fed.* vol. xv. p. 34, ed. 1713) does not specify the service rendered in each of these arts. According to Canon Jackson (and he adduces proofs) there were two individuals to whom the designation of John of Padua might be applied: one was Giovanni Padovani of Verona, a maker of sun-dials and an organist, of whose ability in architecture nothing is known; the other, Giovanni Maria Padovani of Venice, who knew sufficient of architecture to ornament with sculpture and probably to erect a royal mausoleum in Poland, and who was beside a very celebrated musical composer, especially of ballads and other compositions of a more elevated character for the amusement of the Court. Of these two persons there does not appear to be any difficulty in making a choice."

* Paper by Sir M. D. Wyatt on "Foreign Artists in England," *R.I.B.A. Trans.* 18th May 1868, p. 234.

9, Conduit Street, London, W., *24th September* 1898.

CHRONICLE.

The Sanitary Institute Congress.

The Seventeenth Congress of the Sanitary Institute, to be held at Birmingham from the 27th September to the 1st October, will open with a reception in the Council House by the Lord Mayor of Birmingham. The President, Sir Joseph Fayrer, will deliver his inaugural Address in the Birmingham and Midland Institute, and the Exhibition will be held at Bingley Hall. The Institute is to be officially represented by Mr. Thos. W. Cutler [*F.*] and Mr. Wm. Henman [*F.*], President of the Architecture and Engineering Section. Other members of the Institute officially taking part are Messrs. Lewis Angell [*F.*], C. E. Bateman [*F.*], H. H. Collins [*F.*], Ernest Day [*F.*], and Wm. Hale [*F.*]. "Dwellings of the Working Classes," "Construction and Ventilation of House Drainage," and "Drainage of Buildings possessing no open space" are among the subjects to be discussed.

A New Art Review.

Among the foreign art publications, such as the German *Der Stil* and *Der Formen Schatz*, which the Library of the Institute receives through the courtesy of the several publishers, there is one which merits more general support than it seems to obtain. This is the *Bouw- en Sierkunst*, published by Messrs. Kleinmann & Co., of Haarlem. The first number appeared in January 1898, and though it was announced as a two-monthly periodical, the third number, that for May, has only now come to hand. The French equivalent title is *Revue de l'Art Antique et Moderne*, which to the ordinary English reader gives a clearer idea of its scope. The text all through is given in the two languages. In an introductory article in the first number Mr. J. L. M. Lauweriks, of Amsterdam, enters into an æsthetic discussion on the relations between the essential artistic Principle, the Artist who acts in obedience to the impulse of the Principle, and the Work of Art that is the result. The Principle alone of the three terms of the proportion is imperishable; but to understand this Principle, a clear realisation of the proportion is imperative.

The object, therefore, of the review seems to be the illustration of this proportion by examples of works of Ancient and Modern Art of the same class. Each number contains ten plates dealing with Ancient Art and five with Modern. The first number contains illustrations from a Psalter of the thirteenth century and of a modern commemorative album, binding, inner pages on parchment, &c., presented in 1896 to Professor Foster, of Amsterdam. The March number deals with some Egyptian sculptures and bas-reliefs and the work of L. Zijl, of Amsterdam. Judging from the photographs one is inclined to attribute a clearer vision to the Egyptian than to the Modern. The May issue, which is the best, takes for its ancient work a very beautiful Japanese painting, representing Buddha surrounded by mythological personages and symbolical attributes, and for its modern pendant some of the work of the young Dutch *Symboliste*, J. Tooroop, whose marvellous picture of *The Brides* aroused such sincere admiration together with unsatisfied curiosity at the Exhibition of International Art at Knightsbridge this year. One of the most interesting plates is a study for *The Sphynx*, which was also on view at Knightsbridge. Each set of plates is accompanied by a descriptive text, but the moral to be enforced by the comparison or contrast of the old and the new is left, after Mr. Lauweriks's first article, to the student of æsthetics. The plates are beautifully printed on fine paper, and the general form of the periodical commends itself to the lover of good and artistic workmanship.

Mr. Hugh Stannus [*F.*] has been specially engaged to give a course of lectures at the Manchester Municipal School of Art next session on "The Principles and Practice of Architecture." The architectural curriculum at this School has been arranged in co-operation with the Manchester Society of Architects.

Mr. Wm. J. Anderson [*A.*] is to deliver a series of lectures at the Glasgow School of Art next Session on "The Architecture of the Renaissance in France." Mr. Batsford is just issuing a second edition of Mr. Anderson's *Architecture of the Renaissance in Italy*, and announces as in preparation by the same author a work entitled *Architecture of Greece and Rome: a Sketch of its Historic Development*.

The death is regretfully recorded of Henry Hewitt Bridgman, *Associate* 1871, *Fellow* 1883; andof the following Associates: Charles Emanuel Evans, elected 1882; Sidney Alexander Ell, elected 1889, and George Macfie Poole, elected 1896.—Sir Henry William Peek, whose death was recently announced, had been an Honorary Fellow since 1871.